In the Claims

Applicant has submitted a new complete claim set showing marked up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing.

Please amend pending claim 1 as noted below.

Please cancel claims 20-23 as noted below.

1. (Currently Amended) A composition comprising

(a) a nucleic acid molecule encoding a fusion protein comprising

(aa) a (poly)peptide that enhances solubility and/or prevents aggregation of said fusion protein; and

(ab) an amyloidogenic (poly)peptide that has the ability to self-assemble into amyloid-like fibrils or protein aggregates, wherein connection of polypeptides (aa) and (ab) is via a linker or by a direct attachment, and wherein at least one of the linker, (poly)peptide (aa) and (poly)peptide (ab) includes a cleavable site ~~wherein the fusion protein comprises at least one cleavable site that is outside of polypeptide (aa) and (ab)~~;

(b) a vector containing the nucleic acid molecule of (a);

(c) a host transformed with the vector of (b);

(d) a fusion protein encoded by the nucleic acid of (a) or a functional derivative thereof; and/or

(e) an antibody specific for the fusion protein of (d).

2. (Original) The composition of claim 1 wherein the amyloidogenic (poly)peptide comprises a polyglutamine expansion.

3. (Original) The composition of claim 2 wherein said polyglutamine expansion comprises at least 35 glutamines.

4. (Original) The composition of claim 3 wherein said polyglutamine expansion comprises at least 51 glutamines.

5. (Original) The composition of any one of claims 2 to 4 wherein said (poly)peptide defined in (ab) is huntingtin, androgen receptor, atropin, TATA binding protein, or ataxin-l,-2,-3, -6 or -7 or a fragment or derivative thereof.

6. (Original) The Composition of any one of claims 1 to 5 wherein said amyloidogenic (poly)peptide self-assembles subsequent to release from said fusion protein.

7. (Withdrawn) The composition of claim 1 wherein said amyloidogenic (poly)peptide is the amyloid precursor protein (APP), β-protein, an immunoglobulin light chain, serum amyloid A, transthyretin, cystatin C, β2-microglobulin, apolipoprotein A-1, gelsoline, islet amyloid polypeptide (IAPP), calcitonin, a prion, atrial natriuretic factor (ANF), lysozyme, insulin, fibrinogen, tau proteins or α-synuclein or a fragment or derivative thereof.

8. (Original) The composition of any one of claims 1 to 7 wherein said (poly)peptide defined in (aa) is glutathione S-transferase (GST), intein, thioredoxin, dihydrofolate reductase (DHFR) or chymotrypsin inhibitor 2 (C12) or a functional fragment or derivative thereof.

9. (Original) The composition of any one of claims 1 to 8 wherein said nucleic acid is DNA.

10. (Original) The composition of any one of claim 1 to 9 wherein said vector is an expression vector or a gene targeting vector.

11. (Previously Presented) The composition of any one of claims 1 to 10 wherein said host is a bacterial, preferably an E.coli, an animal cell, preferably a mammalian cell, an insect cell, a plant cell , a fungal cell, preferably a yeast- and most preferably a Saccharomyces or Aspergillus cell, a Pichia pastoris cell, a transgenic animal cell or a transgenic plant cell.

12. (Withdrawn) A method of producing a fusion protein as defined in the composition of any of the preceding claims comprising culturing or raising the host as defined in claim 11 and isolating said fusion protein.

13. (Withdrawn) The composition of any one of claims 1 to 12 wherein said antibody is a monoclonal antibody, polyclonal antibody, phage display antibody or a fragment or derivative thereof.

14. (Withdrawn) An in vitro method of producing amyloid aggregates comprising

(a) at least partially cleaving the fusion protein comprised in the composition of any one of claims 1 to 13 wherein the (poly)peptide that is released has the ability to self-assemble into amyloid-like fibrils or protein aggregates;
or

(b) inducing self-assembly into amyloid-like fibrils or protein aggregates by heating the fusion protein comprised in the composition of any one of claims 1 to 13 or an amyloidogenic (poly)peptide that has the ability to self-assemble into amyloid-like fibrils or protein aggregates, by inducing a pH change in a solution comprising said fusion protein/(poly)peptide or by treating said fusion protein/(poly)peptide with a denaturing agent.

15. (Withdrawn) The method of. claim 14 wherein said cleavage is effected chemically or enzymatically, or by the intein self-cleavage reaction in the presence of thiols.

16. (Withdrawn) A method of testing a prospective inhibitor of aggregate formation of a fusion protein as defined in the composition of any one of claims 1 to' 13 when enzymatically or chemically cleaved or a non-cleaved fusion amyloidogenic (poly)peptide as defined in any one of claims 1 to 13 or an amyloidogenic non-fusion (poly)peptide comprising

(a) incubating in the presence of a prospective inhibitor

(aa) said fusion protein in the presence or absence of a cleaving agent; or

(ab) said non-fusion poly(peptide); and

(b) assessing the formation of amyloid-like fibrils or protein aggregates.

17. (Withdrawn) The method of claim 16 wherein incubation is effected in the presence of factor Xa, trypsin, endoproteinase Arg-C, endoproteinase Lys-C, proteinase K or elastase at a temperature of preferably 25 to 37°C for 0,5 to 16 hours and the assessment of the formation of fibrils or aggregates in step (b) is preferably effected by a filter assay or by a thioflavine T (ThT) fluorescence assay, in which the fluorescence intensity reflects the degree of aggregation.

18. (Withdrawn) A method for identifying an inhibitor of aggregate formation of a fusion protein as defined in any one of claims 2 to 6 prior to or after proteolytic or chemical cleavage or of a non-fusion amyloidogenic (poly)peptide that has the ability to self-assemble into amyloid-like fibrils or protein aggregates comprising

(a) loading a surface or gel with said protein or an aggregate thereof;

(b) incubating said surface or gel with a prospective inhibitor; and

(c) assessing whether the presence of said prospective inhibitor avoids or reduces aggregate formation or further aggregate formation.

19. (Withdrawn) The method of claim 18 wherein said surface is a membrane.

20-23. (Cancelled)